

## **II. Remarks**

### **A. Introduction.**

Reconsideration and allowance of the subject application are respectfully requested. Upon entry of this amendment, Claims 1-7, 9, and 11-15 will be pending in the application. Of the examined claims, Claims 1, 14 and 15 are independent. Claim 15 is amended. Claims 8 and 10 have been canceled via previous amendments. No new matter has been added.

### **B. The addition of 20% grafted copolymer to the claimed coupling agent would affect the basic and novel characteristics of the claimed invention.**

Claims 1-3, 5-7, 9 and 11-14 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,716,928 to Botros, et al. (hereinafter "Botros"). Applicant traverses the rejection in view of a Declaration from inventor, Dr. William D. Sigworth, and the arguments presented in this paper.

The transitional phrase "consisting essentially of" limits the scope of a claim to the specified materials or steps "and those that do not materially affect the basic and novel characteristic(s)" of the claimed invention. (*See, e.g., In re Herz*, 537 F.2d 549, 551-52, (CCPA 1976) (emphasis in original)).

Independent Claims 1, 14, and 15 recite a coupling agent consisting essentially of a base polypropylene homopolymer and at least one polar monomer grafted thereto. Botros discloses "functionalized products . . . obtained using specific propylene-ethylene impact copolymers . . . [that] are reactor-made intimate mixtures of propylene homopolymer **and propylene-ethylene copolymer.**" (*See* Botros, column 4, lines 30-37). Further, Botros states that it is necessary to employ these specific impact co-polymers to achieve improved results. (*See* Botros, column 3, lines 26-33). Hence the functionalized products of Botros **require a propylene-ethylene copolymer.** Because Botros requires such co-polymers, Botros cannot teach the claimed coupling agent. Thus, Botros fails to disclose a coupling agent consisting essentially of a base polypropylene homopolymer and at least one polar monomer grafted thereto, as recited.

The Office Action essentially concedes that Botros does not disclose the claimed coupling agent. However, in attempting to meet the claimed coupling agent feature, the Office Action alleges that "it is the position of the Examiner that the essential nature of the coupling agent would not be changed by the use of the agents of the reference since said agents are suitably 80% grafted homopolypropylene . . . ." (Office Action, page 2). Applicants strongly

disagree. The Office Action provides absolutely no basis in Botros or anywhere else for this statement. Thus, the Office Action's statement lacks any basis on the record and cannot be used to substantiate a rejection.

In response to the Office Action's unsupported allegations, Applicants submit the Declaration of inventor, Dr. William D. Sigworth. In his Declaration, Dr. Sigworth states that coupling agents "consisting essentially of a rigid thermoplastic polypropylene homopolymer that are grafted with a polar monomer [as claimed] improve dispersion and increase interfacial adhesion while maintaining the tensile modulus of the natural fiber-filled polypropylene composition." (Declaration, item 6). Dr. Sigworth further states that "adding a coupling agent comprising a rubbery copolymer, such as *propylene-ethylene copolymer* or propylene-ethylene-ethylidene norbornene terpolymer, to a natural fiber-filled polyolefin composition would reduce the tensile modulus or stiffness of the natural fiber-filled composition." (Declaration, item 7). This statement directly rebuts the Office Action's statement regarding the coupling agent, and shows that the essential nature of a coupling is changed by using a propylene-ethylene copolymer.

Further, in support of Dr. Sigworth's statements, Dr. Sigworth tested various natural fiber-filled polyolefin compositions and measured the tensile moduli of these compositions. Dr. Sigworth found that tensile moduli of the natural fiber-filled polyolefin compositions decrease significantly with the addition of coupling agents comprising rubbery copolymers or terpolymers grafted with a polar monomer, e.g., maleic anhydride. (Declaration, item 9). Importantly, Dr. Sigworth states that "replacement of 20 wt% of maleic anhydride grafted homopolymer with maleic anhydride grafted propylene-ethylene copolymer in a coupling agent would have a significant effect on the essential nature of the resultant coupling agent and would significantly reduce the tensile moduli (stiffnesses) of natural fiber-filled polyolefin, e.g., polypropylene or polyethylene, compositions that employ such coupling agents." (Declaration, item 10). Thus, based on Dr. Sigworth's Declaration, the replacement of 20 wt% of maleic anhydride grafted homopolymer with maleic anhydride grafted propylene-ethylene copolymer would clearly affect the basic and novel characteristics of the claimed invention.

It is well established that a claim can be rejected under 35 U.S.C. §102 "if each and every element as set forth in the claim is found . . . in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, (Fed. Cir. 1987). As indicated above, Botros does not and cannot teach the claimed coupling agent consisting essentially of a base

polypropylene homopolymer and at least one polar monomer grafted thereto. The Office Action's statement that the essential nature of the coupling agent would not be changed by the use of the agents of the reference since said agents are suitably 80% grafted homopolypropylene has been rebutted by the Declaration of Dr. Sigworth, and cannot be properly used to teach the claimed coupling agent. Thus, Botros fails to teach every element of Claims 1, 14, and 15. Accordingly, Botros does not and cannot anticipate Claims 1, 14, and 15. The rejection should be withdrawn.

**C. The references fail to teach the claimed coupling agent.**

Independent Claim 15 and dependent Claim 4 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Botros in view of U.S. Patent No. 6,682,789 to Godavarti, et al. (hereinafter "Godavarti"), and U.S. Patent No. 5,075,359 to Castagna, et al. (hereinafter "Castagna"). Applicant traverses the rejection in view of the Declaration from inventor, Dr. William D. Sigworth, and the arguments presented in this paper.

As indicated above, Botros fails to teach the coupling agent of Claim 15. Godavarti is only cited for teaching the use of wood fiber. Castagna is only cited for teaching the use of fatty acid esters as lubricants. Godavarti and Castagna do not teach or suggest the claimed coupling agent. For at least the reasons mentioned above, Botros, Godavarti and/or Castagna, alone or in combination, fail to teach the coupling agent of Claim 15.

It is well settled that the Patent Office bears the burden of establishing a *prima facie* case of obviousness under 35 U.S.C. § 103. (See *In re Deuel*, 51 F.3d 1552, 1557 (Fed. Cir. 1995)). To establish a *prima facie* case of obviousness, the Patent Office must show *inter alia* that the prior art teaches or suggests every claim limitation. (See *Manual of Patent Examination and Procedure (MPEP)* § 2143; *In re Vaeck*, 20 U.S.P.Q.2d 1438, 1442 (Fed. Cir. 1991)). As indicated above, Botros, Godavarti, and/or Castagna fail to teach the claimed coupling agent. Thus, Botros, Godavarti, and/or Castagna fail to teach or suggest every feature of Claim 15. Accordingly, Claim 15 is patentable over Botros, Godavarti and/or Castagna. The rejection should be withdrawn.

**D. Dependent Claims.**

Dependent Claims 2-7, 9, and 11-13 depend from their respective independent claims and include all the features thereof. Independent Claims 1, 14, and 15 are patentable for the reasons discussed above. Dependent Claims 2-7, 9, and 11-13 are patentable for at least the same reasons. The rejections should be withdrawn.

**E. 1.104(d)(2) Affidavit from Examiner.**

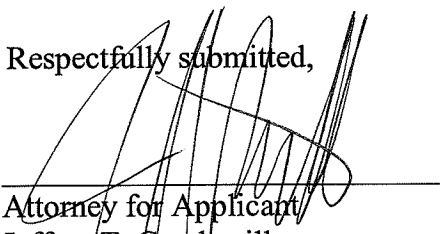
The Examiner inaccurately alleges that “it is the position of the Examiner that the essential nature of the coupling agent would not be changed by the use of the agents of the reference since said agents are suitably 80% grafted homopolypropylene . . . .” (Office Action, page 2). The Examiner cites no authority in support of this statement, and Botros provides no basis for such a statement. Thus, this naked allegation is not based on any evidence and, presumably, must be based on personal knowledge. Accordingly, Applicants request an affidavit, under 37 C.F.R. § 1.104(d)(2), from the Examiner to support the Examiner’s allegation. (See *In re Lee*, 61 USPQ2d 1430, 1435 (Fed. Cir. 2002) (“when they rely on what they assert to be general knowledge to negate patentability, that knowledge must be articulated and placed on the record.”); *In re Sun*, 31 USPQ2d 1451, 1455 (Fed. Cir. 1993) (unpublished) (“As the PTO points out in its brief, however, the procedures established by 37 C.F.R. [§ 1.104(d)(2)] expressly entitle an applicant, on mere request, to an examiner affidavit that provides such citations.”)).

**F. Conclusion.**

In view of the above, it is believed that this application is in condition for allowance, and a Notice thereof is respectfully requested.

Applicant’s undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 625-3620. All correspondence should continue to be directed to the address given below.

Respectfully submitted,



\_\_\_\_\_  
Attorney for Applicant/  
Jeffrey T. Gendzwill  
Registration No. 55,201  
KATTEN MUCHIN ROSENMAN LLP

**Please continue to direct all  
correspondence to:**  
Patent Administrator  
Chemtura Corporation  
199 Benson Road  
Middlebury, CT 06749  
USA